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ABSTRACT

This research is a practical investigation of the effectiveness of the methods and modes which have been used to increase the listening comprehension skills of Chinese speakers learning English as a second language (ESL). A twelve-minute videotape, "Hawaii, Chinese Style," was chosen for the experiment because the language was authentic and the content was culturally familiar to the subjects. It was hypothesized that the audio mode, without visual representation, would be more effective than the video for learning to listen to and understand ESL. The subjects, 112 university students enrolled in a required course in ESL for students with limited English proficiency, were randomly assigned to the audio or the videotape. They were given a short introduction about the content, and were allowed to listen to the material twice. Immediate recall of information on the tape was tested by administering an objective test devised by the teachers after the second exposure to the material. An analysis of the data confirmed the working hypothesis, but it is suggested that the results be interpreted with caution because testing for proficiency via print permits some interpretation of factual information and some degree of inference. (AMH)

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# COMPARING MODES OF INSTRUCTION USED IN LEARNING TO LISTEN TO AND UNDERSTAND ENGLISH AS A SECOND LANGUAGE

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COMPARING MODES OF INSTRUCTION USED IN LEARNING TO LISTEN TO AND UNDERSTAND ENGLISH AS A SECOND LANGUAGE

Carolyn R. Ortmeyer and Beth L. Goldstein

As classroom teachers and planners of curricula, we are concerned with the issue of how second language learners who have already been exposed to a minimum of nine years of instruction in the medium of English best learn to understand speech disseminated through audio-visual media. Recently, audio-visual media has become extensively used in second language courses to improve the ability of listeners to gather information and to make inferences, and to involve the students in the content of the media in order to stimulate discussion. We see this research as a practical investigation prompted by questions raised by students and teachers as to the effectiveness and application of the methods and modes we have been using to improve the listening comprehension of the students. Certainly, factors such as sentence length, sentence complexity, redundancy, speech rate, affect the process of understanding through listening, but we have chosen to investigate mode or media channel because of audio-visual media popularity in the classroom.

## The Linguistic Medium

Speech for listening comprehension can be classified into two categories: unmodified authentic discourse - original materials designed for a native speaking audience (Wilkins, 1976) - and simulated authentic discourse - materials made to approach closely the language of actual use, yet created specifically for a second language syllabus. (Geddes, White 1978). The original form of either kind of discourse can be unscripted, as in conversation; scripted as in radio plays or news broadcasts; or semi-scripted as in talk shows or face-to-face interview programmes.

We selected semi-scripted unmodified authentic discourse for experimental purposes - a 12 minute videotape in colour called, Hawaii, Chinese Style. The content of the tape was culturally familiar to our students and was representative of the kind of language they are exposed to in lectures, small group discussions, and public media. However, the external criterion test of listening which was used to assess proficiency was simulated authentic

discourse recorded in a studio by teachers. While we might have preferred to use authentic material for proficiency testing, we had used the stimulated test before as a test of listening proficiency and found it discriminated between listeners.

The Modes

Videotape (mixed channel: audio-visual) and a tape of the sound track of the video (single channel: audio) were the linguistic content of the experiment. Recall and search for factual information were tested; recall of pictorial stimuli was not. Although many other studies have been carried out on the effects of different media on recall of factual information (Hartman 1961a, Hartman 1961b, Hsia 1971, Nasser and McEwen 1976), and on involvement* with media (Nasser and McEwen 1976, Weiss Review 1971, Krugman 1965, 1971), as far as can be determined, these tests of media preference and effectiveness were carried out with subjects whose native language was English and in language situations much simpler than those occurring in university lectures and public media. In studies cited, video can mean: straight filming of a person speaking without print appearing on the screen; a combination of print, pictures, audio; complex combinations where stimuli are redundant; complex combinations where some stimuli are additional cues.

An idea shared by many is that greater learning occurs when multiple channel material is presented. Hartman (1961b), in his review of literature on media channels and learning, suggests that while comparisons between pictorial-verbal presentations strongly indicate the advantage of multi-channel presentations, these results should be viewed with caution because of the varied experimental designs and biases against the verbal channel.

In tests (print medium) for both recall and involvement, Nasser and McEwan using a 20-item multiple choice examination of recall, compared scores elicited by videotape, audiotape alone, print alone, and audio plus print. As predicted, the videotape resulted in higher recall scores than the audiotape alone, but the difference was not significant.

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* involvement refers to listeners' preference for a medium which involves them to a greater degree because of its visual or live qualities, its additional cues for sustained interest and understanding.

Barrow and Westley (1959) found TV superior to radio for tests of immediate recall of factual knowledge. Gradeschool children listened or watched and listened to a series of background-of-the-news programmes, and were tested on a 24-item multiple-choice test (print medium) of the information contained in each of the four news programmes.

Tabachnick, Palmer, and Esmay (1978) found that when using media for self-instruction, students preferred videotape plus a worksheet to audiotape plus a worksheet to learn about a particular economic concept. But results showed that videotape was not any more effective than audiotape plus worksheet in preparing S's for a test of delayed recall given three weeks after the self-instruction.

Hsia (1968, 1971), in discussing the differences in information processing between channels, proposed the audio-visual channel has advantage over audio or visual alone if the stimuli presented are nearly identical - when there is a great deal of redundancy in the material. However, if the sum of information to be processed is beyond the capacity of the individual's central nervous system, information is lost, error (incorrectly interpreted material) occurs, and information "jamming" may ensue. More specifically, if the audio cues do not support the visual cues, and vice versa, the effectiveness of the audio-visual channel may be much reduced by between-channel interference.

As can be seen from the above survey, educational research on the effectiveness of channels of communication is conflicting and seems to be limited to subjects whose native language is English. The findings from studies in neurophysiology and mass communication on individual responses to different modes are also clouded by conflicting theories of information processing. Based on these studies which are related but not directly applicable to teaching second language learners, it is difficult for us as teachers to decide the best mode for the classroom. However, our own experience with second language learners has indicated that the audio mode appears to be more effective than does the video.

Hypothesis

The audio mode will prove to be the superior mode for learning to listen to and understand English as a second language.

## Research Design

### Measures

We chose to test immediate recall rather than involvement because we wanted to test understanding of the information content of the tape; we already knew from preference questionnaires of students' feelings about the different media channels. Both the 50-item multiple choice test of listening proficiency and the 29-item multiple choice, true-false test of the content of the tapes were constructed by teachers, and were not standardized. The 50-item test of listening proficiency was the external criterion upon which the stratification of subjects was based. All testing was done in the medium of print. The results of the listening proficiency test when given to more than 100 1st year students at the beginning and end of the 1977-78 academic year, gave us reason to believe that the items of the test discriminated between listeners. The test questions were not released to students; confidentiality was not a problem. The original 38-item test on the content of the tape was pretested with a group of 14 S's who had not seen or heard the video tape. From their results, we eliminated items not directly dependent on the content of the tape for answers; the edited test consisted of 29 items.

### Method

The listening proficiency test was administered to the S's two weeks before the testing of modes. Each subject was then tested under one of two treatment conditions - audio or video - on the same day at the same time in one of two locations - a language laboratory or an audio-visual room. They either listened to or saw and listened to the Hawaii-Chinese Style tape, a story of the emigration of the Chinese to Hawaii more than a hundred years ago and contribution the group is making to the Hawaiian economy.

The procedure was as follows:

1. The S's listened to a taped introduction of the title and subject matter.

2. The S's listened to or watched and listened to the experimental tape without taking notes and without seeing the test questions or knowing the type of information sought on the tests.

3. The S's were told to read the questions on the test. (5 minutes)

4. The S's listened to or watched and listened to the tape for the second time, knowing what questions would be on the test.

5. The S's were given 15 minutes to complete answers on the question sheet.

Testing Conditions

The testing conditions for the audio and the video were optimal. Variables of outside noise and interruption were negligible. The video tape was shown on two monitors. The sound tract for the video and the audio could be heard clearly in all parts of the room. Audio testing was carried out in individual booths with individual head sets.

Subjects

The 112 S's for this study represented 1st year students from all the faculties of the university except Science and English. They were all enrolled in a required English course for students who had received a C mark or lower on the English section of the Higher Level Examination for entry into the university. Those who participated were those who were free at the time the experiment was conducted. Though they were not representative of the total population of the 1st year class, they were representative of a group of students we teach year after year. The S's in the test group were randomly assigned to the audio or video treatment groups after stratification for listening proficiency measured by scores on the 50-item multiple choice test.

## Results

We predicted a [illegible] that the audio mode would elicit higher recall and inference scores than the video mode. Therefore, we set out to disprove the null hypothesis that no real difference existed at a 5 percent level of rejection.

In Table 1, the mean for the 56 cases in the audio group was significantly higher ($p=0.018$) than for an equal number of cases in the video group. When divided into Low, Middle and High groups on the basis of scores on the listening proficiency test, it was the comparison of High-audio to High-video which showed a significant difference in test results, (High, $p=0.033$). Though a pattern of difference in the means in the Middle and Low groups appears, the probability is greater than 5 percent that this is a chance occurrence. These findings show that the audio mode is superior to the video mode, with the greatest contribution to the superiority being made by the High group.

When performance on the listening proficiency test was compared to performance on the audio test, the L, M, and H groups on the listening proficiency test correlated strongly with L, M, and H groups on the audio test. Table 2 show that for the L listening group, the majority of S's scored low on the audio and for the H listening group, the majority of S's scored high on the audio; for the M listening groups, the audio results are more evenly distributed across L, M, H. The L, M, and H groups of the listening proficiency test did not correlate significantly with the L, M, and H groups of the video. Table 3 indicates that the listening proficiency test is not a predictor of performance on the video test.

The Pearson correlation co-efficient showed $r=0.4968$, audio to listening test, and $r=0.3895$, video to listening test. The co-efficient indicates the tests are related, but for the sample of the population which we tested, the correlation is moderate.

T-tests used for comparing the difference between students who had attended Chinese Middle Schools (language of instruction Chinese) and Anglo-Chinese Secondary Schools (language of instruction English) indicate type of school and performance on the listening proficiency test were strongly correlated ($p=0.001$), but correlation of much less significance is indicated between types of schools and the audio or video test. Although $p>0.05$, a distinct pattern of correlation and sequence of means emerges (Table 4).

An analysis of the data indicates that the audio mode is superior to the video mode for eliciting recall. However, these results must be interpreted with caution.

Table 1

Mean Comparisons of Treatment on Recall for Listening Proficiency Levels.

| Listening Proficiency | | Treatment | N | $\bar{X}$ | p |
|---|---|---|---|---|---|
| Total | | Audio | 56 | 15.91 | 0.018 |
| | | Video | 56 | 14.50 | |
| Low | (21-33) | Audio | 16 | 13.94 | 0.649 |
| | | Video | 22 | 13.55 | |
| Middle | (34-37) | Audio | 20 | 15.55 | 0.351 |
| | | Video | 17 | 14.65 | |
| High | (38-46) | Audio | 20 | 17.85 | 0.033 |
| | | Video | 17 | 15.59 | |

Table 2

Crosstabulation of Audio Scores by Listening Proficiency Level. (Number of cases and percentage distribution.)

| | | Audio | | |
|---|---|---|---|---|
| | | L | M | H |
| Listening | L | 10<br>62.5 | 5<br>31.3 | 1<br>6.3 |
| | M | 5<br>25.0 | 9<br>45.0 | 6<br>30.0 |
| | H | 3<br>15.0 | 5<br>25.0 | 12<br>60.0 |

Table 3

Crosstabulation of Video Scores by Listening Proficiency Level. (Number of cases and percentage distribution.)

| | | Video | | |
|---|---|---|---|---|
| | | L | M | H |
| Listening | L | 7<br>31.8 | 11<br>50.0 | 4<br>18.2 |
| | M | 4<br>23.5 | 9<br>52.9 | 4<br>23.5 |
| | H | 2<br>11.8 | 10<br>58.8 | 5<br>29.4 |

Table 4

Impact of Type of School Attended on Testing

| Test | School | N | $\bar{X}$ | p |
|---|---|---|---|---|
| Listening Proficiency | Chinese Middle | 50 | 33.36 | 0.001 |
| | Anglo-Chinese | 56 | 37.05 | |
| Audio | Chinese Middle | 23 | 15.39 | 0.260 |
| | Anglo-Chinese | 29 | 16.45 | |
| Video | Chinese Middle | 27 | 13.78 | 0.144 |
| | Anglo-Chinese | 27 | 14.93 | |

## Discussion

Weaknesses in the testing situation are obvious. Testing via print permits interpretation of factual information and some degree of inference, but does not tap completely the pool of knowledge available from the video, i.e. pictorial cues which are not redundant.

The method of allowing S's to read questions before the second exposure to the audio/video conditions introduces another variable to the testing situation - S's search for information. The reason for doing this was this method assures that the S's attention is directed to the search for answers to the questions.

Repeated testing with the same experimental groups is necessary to confirm the superiority of the audio channel. However, results of previous testing with 1st year university students in 1978 using pre- and post-treatment cloze tests for evaluation of learning, showed the same trend towards superiority for the audio channel. Scores on post-treatment cloze tests taken from the sound track of the video were higher for subjects listening to the audio than for those seeing the videotape. Results for the video group were erratic, showing no such trend.

The question of how our students best learn to listen to English for purposes of recall and inference, we feel, was answered by the present experimental results. We cannot make predications about performance on videotapes different from the type we used or on groups which are not within the specific range of English proficiency of the experimental subjects. But we can make inferences from data gathered in the experiment.

The difference in means between the audio and video test for the total number in the experimental groups, (Table 1) may indicate both between-channel interference on the video test and the inability to deal with multi-channel presentations of authentic discourse. The contribution of the High group to the difference in total means between the audio and video test indicates the bias for this group in favour of high achievement in all audio tests. But the High group does not have this advantage in the video situation where they confront the same novel conditions as the Low and Middle groups.

In the classroom setting, learning aids - vocabulary and complex sentence structure exercises - are normally used in preparation for both audio and video situations. Until students reach a certain level of proficiency, listening to authentic language is difficult. This may be particularly true if students have been trained using simulated language. Preparation for listening and viewing authentic language for our students is essential because the goal for advanced learners of a second language should be understanding language approaching that which native speakers understand. Students whose language proficiency is low may require listening to an audiotape first before viewing in order to extract the meaning of the language without the distraction from pictorial cues. Students may need more than one exposure to a film or videotape. However, more proficient students may be stimulated by the visual in combination with the audio and be able to cope with it.

Tables 2 and 3 show the trend towards a normal frequency distribution between the listening and audio to be more clearly defined than the listening compared to the video. Two possibilities for this exist. In the video testing situation, interference or jamming is occurring: all cues cannot be processed by subjects. Secondly, the listening proficiency test assigned S's to Low, Middle, and High groups on the basis of their skill in listening to audiotapes, and this may not predict their skill in video viewing.

Why was there not a higher Pearson co-efficient of correlation between the multiple-choice test from the audiotape and the multiple-choice test of listening proficiency ($r=0.4968$)? One possible reason is that the listening proficiency test tested simulated language; the experimental material tested authentic language. Another reason is that the difference in the complexity of the linguistic content of the two tests was greater than expected.

The listening proficiency test significantly discriminated between type of secondary school attended ($p<0.05$), but the same discriminating ability is not shown by the audio or video test (Table 3). One reason for this may be that all subjects are accustomed from secondary school teaching methods to simulated material as used in the listening proficiency test. When students are tested using simulated material, the Anglo-Chinese school students who have more experience with it, are more likely to perform better. On the other hand, with authentic material neither group has much experience, confusion results and little difference between school types is noticed. Another reason might be that the range of scores is much narrower on the 29-item experimental test (8 to 24) than on the 50-item proficiency test (21 to 46). The 50-item test contains a greater range of simple to difficult questions that the 29-item experimental test. This allows discriminating ability between the Anglo-Chinese students and Chinese Middle School students to be seen on the proficiency test.

The videotapes we chose to use as testing media cannot be ignored in a discussion on channel effectiveness. While many TV programmes depend heavily on the sound channel to carry the main message, other types of films may not. Hsia (1968) points out that information processing is more complicated than choice of channel. There is a capacity limit for any physical or physiological channel. It can be reached on either audio or visual channels. When the limit for an individual is reached, information beyond the limit is lost. Error and noise deteriorate information processing. The linguistic content of media differs greatly as to the amount of information to be processed and the amount of between-channel redundancy which occurs. Before the most effective mode can be determined, the linguistic content of the material would have to be analyzed for each individual's information processing rate. This of course means research in the area of neurophysiology and is beyond what teachers normally research. We have to depend on student input, educational testing procedures and experience.

Purpose and motivation must also be kept in mind. We have not tested how pictures involve students in material being presented. Some teachers find video and film a successful way to develop competency in communication. Short films in a language students have been studying in the classroom only, motivate them to begin communicating in the language even if it is at the simplest level. In choosing audio or video mode, the overriding factor may be which mode students prefer or which linguistic content they find most

interesting. Most of our second language students, when asked in preference questionnaires, stated a preference for video or film presentations even though they acknowledged audiotape is a more effective learning mode.

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